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| 10/748,174 | 12/31/2003 | Lukas Trosman | 24GA127099 | 5555 |
| 33727 | 7590 | 05/04/2005 | EXAMINER | |
| HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195 | | | BEHREND, HARVEY E | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3641 | |

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/748,174

Applicant(s)

TROSMAN ET AL.

Examiner

Harvey E. Behrend

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/1/65.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-7, 9-11, 13-23 is/are pending in the application.
- 4a) Of the above claim(s) 7, 13, 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 2-7, 9-11, 13-23 is/are allowed.
- 6) ☒ Claim(s) 2-6, 8-11, 14, 15, 17-23 is/are rejected.
- 7) ☐ Claim(s) is/are objected to.
- 8) ☐ Claim(s) are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. .
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date .
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date .
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

Art Unit: 3641

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. This application contains claims 7, 13, 16 drawn to an invention nonelected with traverse in the 8/9/04 response. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144). See MPEP § 821.01.

3. Claims 9, 14, 15, 17-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no proper support in the original disclosure for reciting (as in claim 9) that the fluid passage is a tube "rigidly connectable" to the perimeter wall. Instead, applicants Fig. 1 appears to show the tube as supported by upper grid 26 and lower grid 28.

There is no support in the original disclosure for stating (as in claim 14) that each part-length fuel rod of each of the pairs of part-length fuel rods, forms one of the face-to-face pairs with one of the full-length fuel rods (as shown in the Fig. 2 (the elected

Art Unit: 3641

specie) the two part length rods adjacent the centerline 37 do not form one of the face-to-face with one of the full length rods).

There is no proper support in the original disclosure for reciting (as in claim 17) that the water passages each define a tube "rigidly supported" to the channel. Instead, applicants Fig. 1 appears to show the tubes as supported by upper grid 26 and lower grid 28.

There is no support in the original disclosure for reciting that the fuel rods are "rigidly supported to the channel" (as recited in claim 23). Instead, Fig. 1 appears to show the fuel rods as supported by lower grid 28.

4. Claims 2-6, 9-11, 14, 15, 17-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are vague, indefinite and incomplete.

The claims are vague, indefinite and incomplete, particularly in regard to terms such as "adjacent" (e.g. see claim 17), etc., which are relative, they can be given no definite meaning and accordingly they render the claims vague and indefinite and the metes and bounds thereof are undefined (it is noted that even in applicants copending case SN 10/748175, a distinction is made between "adjacent" and "immediately adjacent").

Claims such as claims 17, 22, 23 for example, are incomplete for omitting essential elements, such omission amounting to a gap between elements. See MPEP 2172.01. The omitted elements are the elements necessary to maintain the various fuel

Art Unit: 3641

rods and water passages in their indicated relationship to each other and to the channel. Note further in this respect that claims such as claims 17 and 22 which recite fuel rods as “rigidly supported within the channel” basically set forth function, without the requisite means to carry out said function and the claims are thus vague and indefinite and the metes and bounds thereof are undefined.

Claims such as claims 9 and 17 are vague, indefinite and misdescriptive in referring to the tube itself as being “rigidly connectable” to the perimeter wall or “rigidly supported to the channel wall”.

Claims such as claim 14 are vague, indefinite and misdescriptive in reciting that each part-length fuel rod of each of the pairs of part-length fuel rods, forms one of the face-to-face pairs with one of the full-length fuel rods (as shown in the Fig. 2 (the elected specie) the two part length rods adjacent the centerline 37 do not form one of the face-to face with one of the full length rods).

The claims are vague, indefinite and incomplete as to what all is meant by and is encompassed by, the reference to a pair of subgroups or, to a first rod group having two subgroups and, that each of these subgroups includes three part-length fuel rods arranged in a triangular-shape. For example, it is not clear if such means there can only be two subgroups with each of these subgroups having only three part-length fuel rods arranged in a triangular-shape, or, if such means that two is the minimum number of subgroups present (e.g. one can have 3, 4, 5, 6 or more subgroups) or, if each subgroup can have more than 3 part-length rods or, if the same or one part-length rod can be counted as one of the three part-length rods for each of the two subgroups

Art Unit: 3641

having three part-length rods (see for example, Figs. 42, 44, 46, 47, 49, 50 of Ueda et al (US 5068082) which shows two subgroups in the region of the fuel assembly centerline, wherein each subgroup can be construed as having three part-length fuel rods with one of these part-length rods (e.g. the centermost part-length fuel rod), being shared by or common to both subgroups).

5. Claims 9, 10, 14, 15, 17-21, 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. There is no adequate description nor enabling disclosure of how and in what manner, the tubes (for the water or fluid passages) and, the fuel rods, are each themselves, "rigidly supported to the channel".

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 3641

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-6, 9-11, 14, 15, 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Aoyama et al, Koyama et al or Orii et al, in view of Ueda et al, alone or with either Ogiya et al or Bender.

The primary references each show the basic structure being claimed including the part-length fuel rods in pairs adjacent (proximate) the perimeter wall as well as other part-length rods adjacent the water rods or fuel assembly centerline.

In Orii et al, note Figs. 15, 17, 18, 20, 21, 23 and cols. 12+.

In Koyama et al, note Figs. 1, 3, 9, 11, 12, 13, 14.

In Aoyama et al, note Fig. 14 and cols. 2, 6, 19, 20.

The primary references do not show the part-length rods in the region of the water rods or fuel assembly centerline as being in at least two subgroups with each subgroups having at least three part-length rods arranged in a triangular-shape.

However, the secondary reference of Ueda et al clearly shows it is a well known and advantageous expedient in this art to provide two groups of part-length rods with

Art Unit: 3641

the longer of the part-length rods being positioned next to the perimeter or channel wall (being grouped in singles or in pairs next to the perimeter or channel wall) and the shorter of the part-length rods being arranged in groups of three or more in a triangular-shape in the region of or proximate the water rods or fuel assembly centerline (e.g. see Figs. 6, 8, 10, 19, 29, 32, 40, 41, 42, 44, 46, 47, 49, 50, 56, 60, 63, 68, 69).

Accordingly, it would have been prima facie obvious to have modified any of the primary references by providing two sets of part-length rods with the longer of the part-length rods arranged along the perimeter or channel wall as shown in any of the primary references, and with the shorter of the part-length rods arranged in groups of at least three in a triangular-shape proximate the water rods or fuel assembly centerline, as shown to be old and advantageous in this art by the above referenced teachings of Ueda et al.

If necessary, resort may be had to the teachings in either Bender et al or Ogiya et al that it is old and advantageous in this art and hence obvious, to provide a fuel assembly with part-length rods of two different lengths with the shortest part-length rods proximate the water tube or fuel assembly centerline and with the intermediate length rods positioned outwardly therefrom.

Note that applicants actual claim language does not preclude the presence of more than three part-length rods in a triangular-shape nor does it preclude the two subgroups with three rods therein, from sharing a rod or having a rod common to both subgroups.

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Art Unit: 3641

9. Claims 4, 10, 12 of this application conflict with claims 1-10, 12-17 of Application No. 10/748175. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication should be directed to Harvey E. Behrend at telephone number (571) 272-6871. The examiner can normally be reached Tuesday through Friday.

Art Unit: 3641

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Behrend/vs
April 25, 2005

**HARVEY E. BEHREND
PRIMARY EXAMINER**